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XIX. *Some farther observations on the use of the Colchicum Autumnale in Gout.* By Sir Everard Home, Bart. V. P. R. S.

Read May 8, 1817.

I LAID before the Society, some experiments and observations in favour of this medicine acting upon the gout through the medium of the circulation, and not by its effects directly upon the stomach and intestinal canal.

The object of the present Paper is to show that the infusion throws down a deposit, the separation of which does not appear to diminish the specific effects upon the gout, and renders those upon the stomach and intestines milder than when the deposit is taken along with the infusion.

The bulb of the *Colchicum Autumnale* contains a certain quantity of extractive matter, and a large portion of mucilage, both of which are taken up by the wine, in the first instance; when the strained liquor is allowed to stand, a considerable deposit almost immediately takes place.

In the first trials that were made with this medicine in St. George's Hospital, it was natural to enquire whether this deposit contained any medical virtues, and upon trials frequently repeated, it was found to have none.

This led to the opinion that the extractive matter suspended in the wine, was alone the active part of the medicine, and not only the first deposit was inert, but also that which from time to time was afterwards found to take place.

Of this opinion I was led to entertain considerable doubts, in consequence of having found upon one occasion, in which I took half a bottle of the Eau Medicinale which had been poured off without shaking the bottle, that the sensible effects were very mild; those produced by the other half, in which the deposit was mixed, were unusually severe, the nausea being greater, and a greater number of stools being produced.

These doubts were much strengthened, when I found that the effects of the Eau Medicinale are more violent upon many stomachs than those of the vinous infusion of the Colchicum, which probably arises from the Eau Medicinale being kept in small bottles, in consequence of which all the deposit that takes place is given along with the infusion, while the vinous infusion of Colchicum being kept in large bottles, the deposit falls to the bottom. If such deposit increased the powers of the medicine in counteracting the symptoms of gout, it would be unnecessary to prosecute this investigation farther, since it would be absurd to diminish the violence of a medicine, if, by so doing, its efficacy is to be diminished in an equal degree.

To ascertain this point, I gave 60 drops of the vinous infusion of Colchicum, in which there was no deposit whatever, to a man labouring under a severe paroxysm of gout, to which he was a great martyr, and whose paroxysms were usually of several weeks continuance; he was 60 years of age.

The medicine was exhibited on the 17th of January 1817, his pulse being 115. In half an hour, he had slight nausea, which soon went off. In 5 hours, a profuse perspiration came on, and the pain of the gout entirely subsided, leaving a soreness in the parts that had been affected. In 12 hours, the bowels were gently moved, his pulse 105 and irregular;

in 14 hours, his bowels were acted on a second time ; in 19 hours, his pulse was 92, and natural ; in 48 hours, he was quite well, and has continued so, a period of more than three months.

The result of this case satisfied me, that the infusion contained the specific remedy for the gout, and that the deposit is not necessary for its removal.

This rendered it probable that, where the deposit is taken along with the infusion, its solid form prevents it from being carried into the circulation of the blood, and it remains in the stomach, producing more or less mischief in that viscus, without being any way concerned in driving away the disease for which the medicine was exhibited ; in this respect resembling many of the salts of mercury, which irritate the bowels, without relieving the symptoms of the venereal disease.

I explained these opinions to Mr. GATCOMBE, who gives me his assistance in my professional pursuits, and requested him to investigate this subject.

To do this more completely, he began by repeating the three experiments detailed in my former Paper, substituting the Eau Medicinale for the vinous infusion of Colchicum, so as to determine with more precision, whether they are or are not the same medicine.

Exp. 1. Thirty drops of the Eau Medicinale with the deposit, were injected into the jugular vein of a dog: the effects were the same, as in my experiment with the same quantity of the vinous infusion of Colchicum, only the animal was 2 hours longer in recovering from them, and was purged for 9 hours afterwards.

Exp. 2. Sixty drops of the Eau Medicinale, were given by

the mouth to the same dog: the effect was less, than in my experiment with the vinous infusion of Colchicum exhibited in the same quantity: this arose from a very copious evacuation of urine having been produced.

Exp. 3. One hundred and sixty drops of the Eau Medicinale, injected into the jugular vein of a dog, produced rather more violent effects, than in my experiment with the same quantity of vinous infusion of Colchicum; the animal died in 6 hours, and after death the appearances of inflammation in the bowels, were more violent, approaching to mortification.

Mr. GATCOMBE having found so exact a similarity in the effects of the two medicines, in these trials, I requested him to make the following comparative experiment on the effects produced upon the stomach and bowels by the Eau Medicinale, in which there is a deposit, and the vinous infusion of Colchicum, in which there is none.

Exp. 4. One hundred and sixty drops of the Eau Medicinale, taken by the mouth, produced the same effects, and left the same appearances after death, as when that quantity was injected into the vein, only the animal lived 9 instead of 6 hours.

One hundred and sixty drops of the vinous infusion of Colchicum, were given to a puppy of the same litter; they produced vomiting, purging, and a great flow of urine; but the animal very soon recovered.

Two hundred drops of the same infusion, after an interval of several days, were given to the same dog, and the effects were the same; the dog had become much improved in his looks and condition.

Three hundred drops, after an interval of several days, were given to the same dog: effects, corresponding with

those of 160 drops of the Eau Medicinale, were produced. The dog died in 9 hours, and the appearances of inflammation after death were of the same kind, but not nearly so extensive.

From these experiments the Eau Medicinale with the deposit, produces double the irritation on the coats of the stomach and intestines, that is brought on by the vinous infusion of Colchicum: this probably arises from the local inflammation brought on by the deposit, upon the internal membrane of these viscera.

To determine as nearly as possible the effects of the deposit, when applied in a solid form, to the coats of the stomach and intestines, the following experiment was made.

Exp. 5. Six grains of the deposit of the vinous infusion of Colchicum, were given to a dog in bread and milk; in 3 hours it produced vomiting and purging, which lasted 24 hours; during the latter part of that time, there was blood in the stools, as well as in what was brought up from the stomach.

I wished to repeat this experiment with the deposit from the Eau Medicinale, but found in bottles that had been kept 7 years, the wine had become vapid, and, in this decomposed state, the acrid part of the deposit had been taken up again; so that in 12 bottles, containing different quantities, only 5 grains could be procured, which was quite inert.

Being at a loss to know whether the extractive matter deposited from the infusion, is in reality more acrid to the stomach than that suspended in it, or the circumstance of its being applied in a solid form renders it so, I requested Professor BRANDE to acquaint me, if it could be the effect of any chemical decomposition having taken place.

He favoured me with the following explanation, which is highly satisfactory. "There are certain vegetable bodies which, when infused in water, or diluted spirit, furnish a solution which lets fall a sediment, in which their activity, as purgative medicines, chiefly resides; this is remarkably the case with the wild cucumber or elaterium. The sediment is a very drastic purge; the part that remains dissolved is comparatively mild in its operation upon the bowels." This explanation of Professor BRANDE applies to the Colchicum, and we are now enabled to separate the purgative qualities of the vinous infusion of Colchicum and Eau Medicinale, from those which prove a specific for the gout, in the simplest possible manner, by keeping them in large bottles, instead of small ones, and not going too near the bottom.

It also explains what is asserted by PROSPER ALPINUS,* that the Egyptian women eat the fresh bulbs, that they may grow fat; an effect which was found to take place in the dog, while the dose was confined within such limits as not to act too violently upon the bowels.

The bulbs of the Egyptian Colchicum, when long kept, weigh one dram each; on being steeped in water they double their weight; so that the quantity of extractive matter contained in two or three recent bulbs, while combined with the mucilaginous matter, of which the bulbs are principally composed, is not likely to be sufficient to do more, than act as a brisk purgative, the occasional use of which tends to make people grow fat.

Since this Paper was read, the patient who is mentioned as having had the gout in January, has had another attack:

* Hist. Nat. Egypt. pars. 1. lib. 3. cap. 14.

it came on the 10th of July, and was removed in the same manner as the former, by the same dose of the medicine. The President of the Society also, convinced by the evidence contained in this and the former Paper, that the Vinum Colchici, in which there is no deposit, must be a less hurtful medicine than the Eau Medicinale, thought it a duty to himself and the public to make trial of it, and on the 20th of July, when the gout in his left hand and the whole of the joints of that side of the body was very severe, allowed me to give him 90 drops of the Vinum Colchici, and found that the symptoms of gout were sooner and more completely removed than they ever had been by the Eau Medicinale, of which he has an experience of seven years, having taken it regularly ever since the 17th of February, 1810, and during that time kept a regular account of the doses, their effects, and the intervals between them.